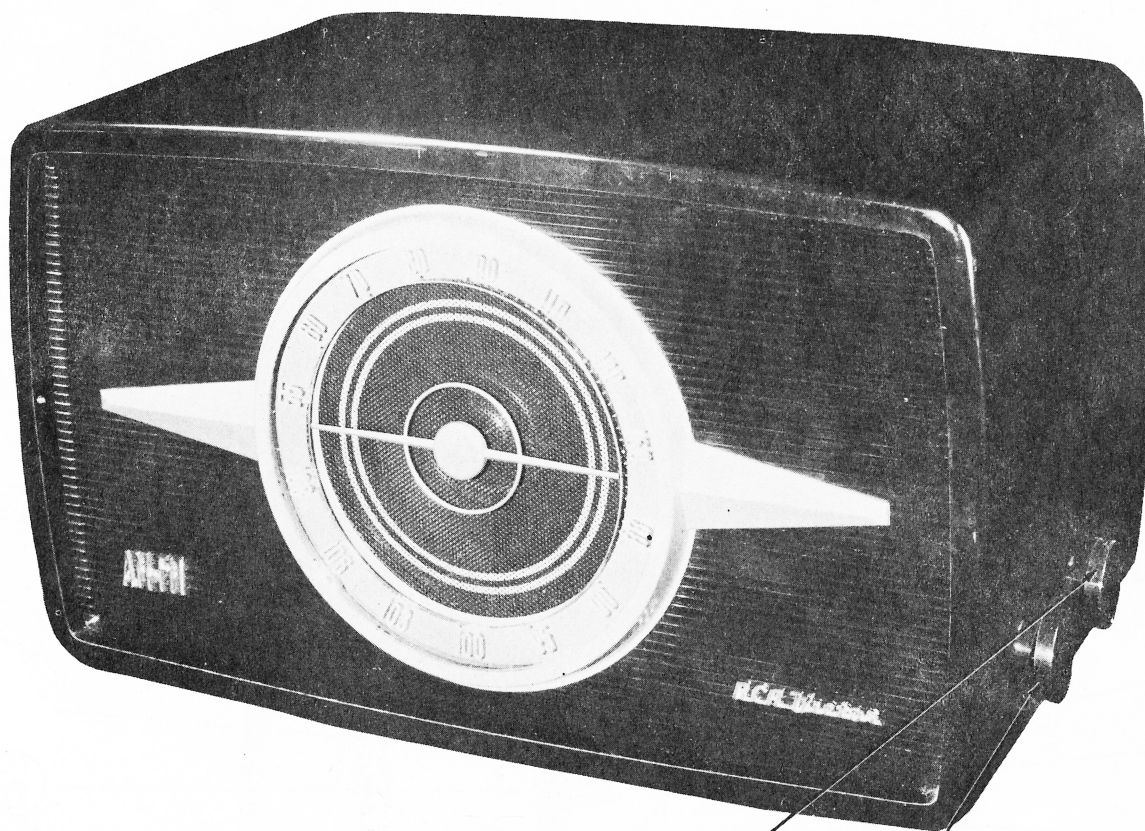




RCA
MODEL 1R81 (Ch. RC-1102)



SELECTOR
SWITCH

TUNING
CONTROL

RCA
MODEL 1R81 (Ch. RC-1102)

TRADE NAME	RCA Victor Model 1R81 (Ch. RC 1102)	
MANUFACTURER	RCA Victor Div., Radio Corp. of America, Camden, N. J.	
TYPE SET	AC operated AM-FM Superheterodyne Receiver with Loop Antenna	
TUBES (EIGHT)	Types 6AU6 FM-AM RF Amp. 6X8 AM-FM Conv., 6BA6 1st FM-AM IF Amp., 6AU6 2nd FM IF Amp., 6AL5 Ratio Det., 6AU6 AM Det. - AVC-AF Amp., 6V6GT Power Output, 5Y3GT Rectifier.	
POWER SUPPLY	110-120 Volts AC	RATING .62 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	540-1600KC	FREQ. MOD. 88-108MC

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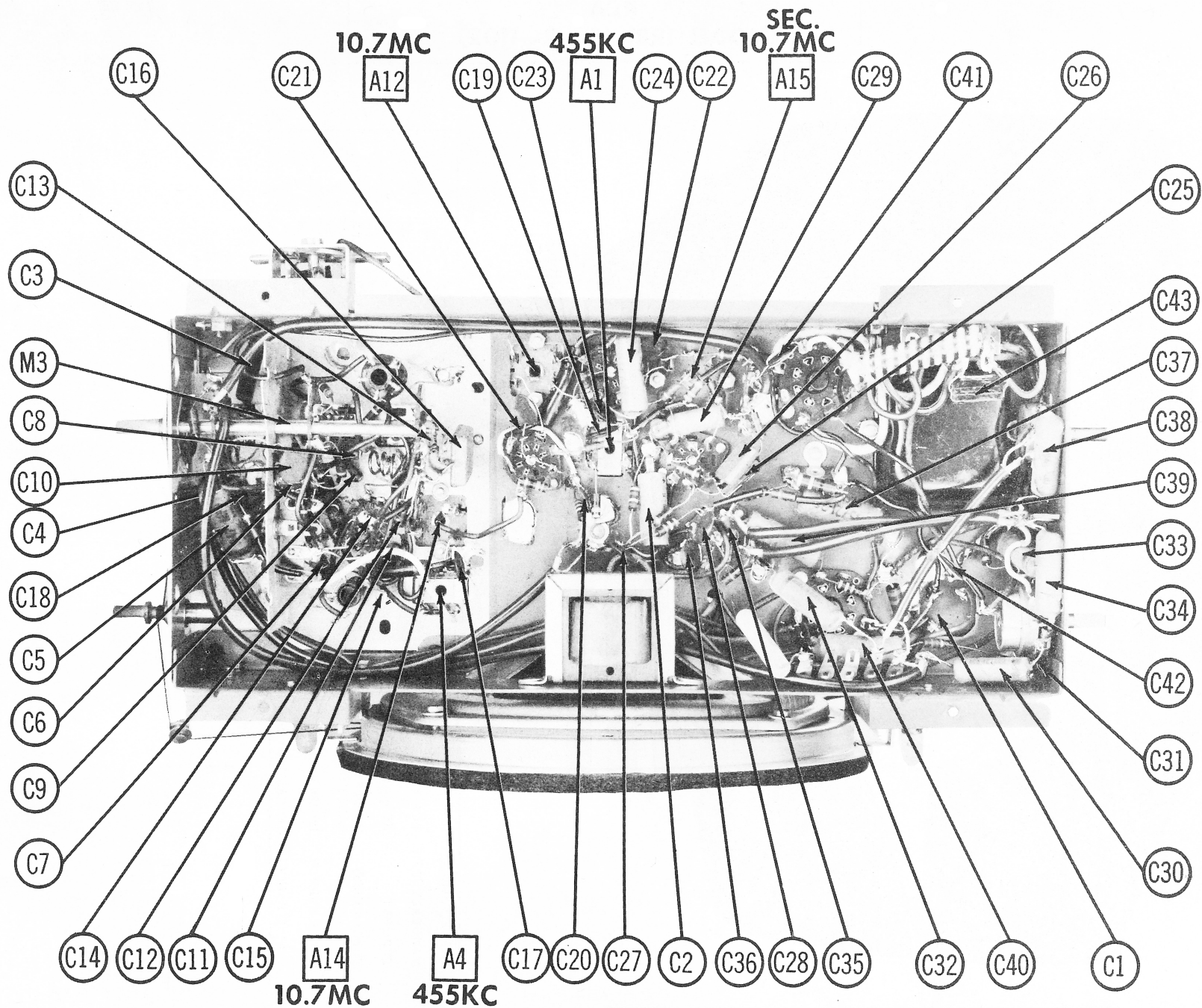
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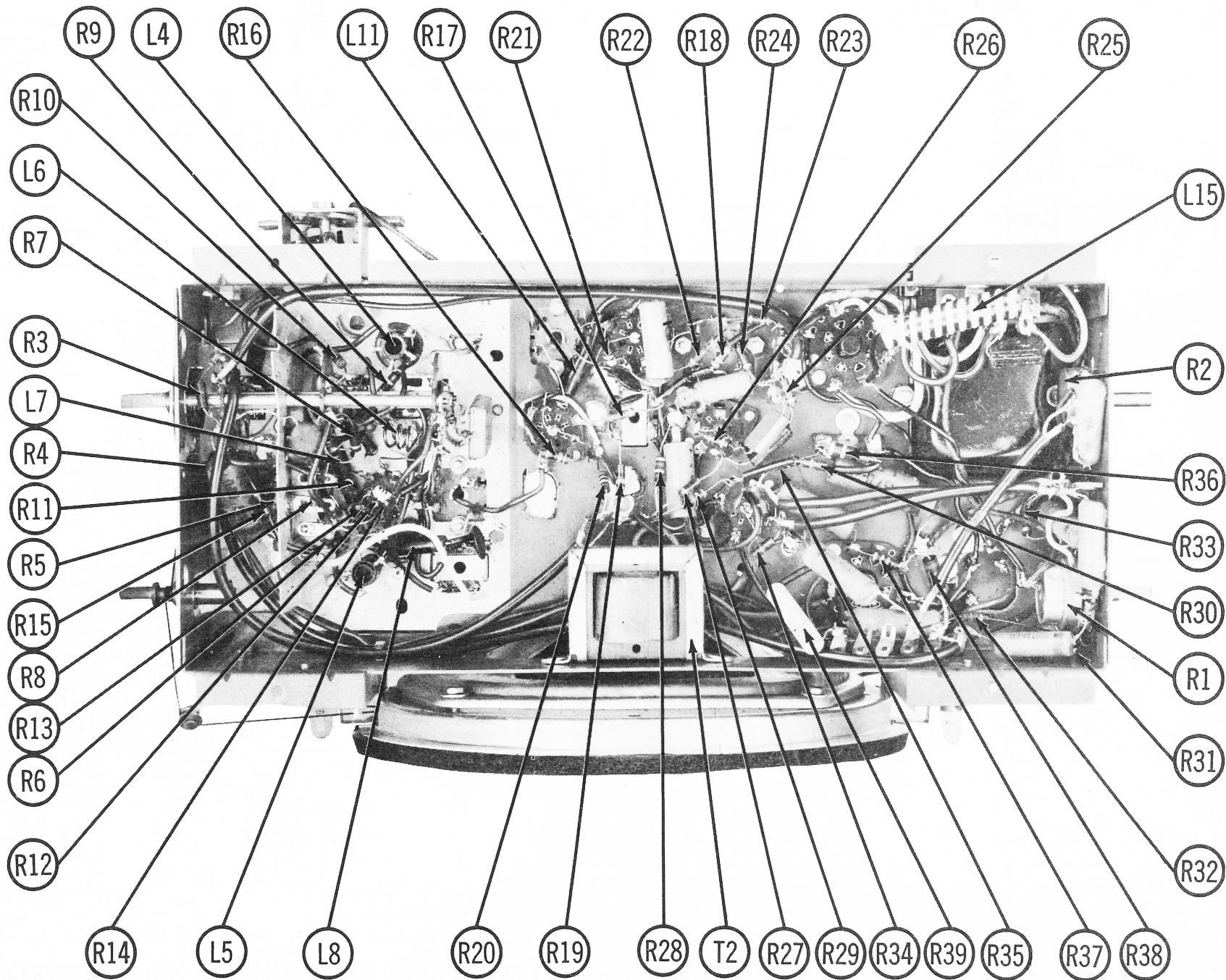
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DATE 1-52

SET 156

FOLDER 10





PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	RCA VICTOR PART No.	IRC PART No.	
R3	2.2Meg		504522	BTS-2.2Meg	AVC Network
R4	2.2Meg		504522	BTS-2.2Meg	RF Amplifier Grid
R5	68Ω		503068		RF Amplifier Cathode
R6	100KΩ		503410	BTS-100K	RF Amplifier Screen
R7	8200Ω		503282	BTS-8200	RF Amplifier Plate Load
R8	560Ω		503156	BTS-560	AM-RF Coil Shunt
R9	390Ω		503139	BTS-390	Parasitic Suppressor
R10	680Ω		503168	BTS-680	Decoupling
R11	3.9Meg		503539	BTS-3.9Meg	Mixer Grid
R12	18KΩ		503318	BTS-18K	Oscillator Grid
R13	33KΩ		513333	BTA-33K	Oscillator Plate Load
R14	120KΩ		503412	BTS-120K	Mixer Decoupling
R15	1200Ω		503212	BTS-1200	AVC Network
R16	68Ω		503068		1st. IF Amplifier Cathode
R17	22KΩ		503322	BTS-22K	1st. IF Amplifier Screen
R18	680Ω		503168	BTS-680	1st. IF Amplifier Decoupling
R19	100KΩ		503410	BTS-100K	Diode RF Filter
R20	390KΩ		503439	BTS-390K	Diode Load
R21	120Ω		503112	BTS-120	2nd. IF Amplifier Cathode
R22	22KΩ		503322	BTS-22K	2nd. IF Amplifier Screen
R23	680Ω		503168	BTS-680	2nd. IF Amplifier Decoupling
R24	100Ω		503110	BTS-100	Balancing
R25	15KΩ		503315	BTS-15K	De-emphasis
R26	3300Ω		503233	BTS-3300	Balancing
R27	1200Ω		503212	BTS-1200	Balancing
R28	39KΩ		503339	BTS-39K	Ratio Detector Diode Load
R29	470KΩ		504447	BTS-470K	AVC Network
R30	22Meg		504622	BTS-22Meg	AVC Network
R31	560KΩ		503456	BTS-560K	Tone Compensation
R32	15KΩ		503315	BTS-15K	Tone Compensation
R33	27KΩ		503327	BTS-27K	Tone Compensation
R34	10Meg		504610	BTS-10Meg	AF Grid
R35	330KΩ		503433	BTS-330K	AF Plate Load
R36	100KΩ		503410	BTS-100K	AF Plate Decoupling
R37	470KΩ		504447	BTS-470K	Output Grid
R38	330Ω		513133	BTA-330	Output Cathode
R39	1200Ω	4	76346	1 3/4A-1200	Filter

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	RCA VICTOR PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC ③ .62A	510VCT ④ .070A	5VAC ④ 2.0A	6.3VAC ④ 3.0A	76326	PM 8403	P-3051	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		RCA VICTOR PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	8KΩ	3.9Ω	370Ω tapped ② 10Ω	.8Ω	76327	A-3849②	A-3032①	RO-13①②	① Drill One New Mounting Hole ② Add extra filter to reduce hum level.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
			RCA VICTOR PART No.	VIKING PART No.	QUAM PART No.	
	FIELD RES.	V. C. IMP.	92586-5W 92586-6W 92586-7W	8J9	8A21	
SP1A B C	P. M.	3.9Ω				Alternate Speaker Alternate Speaker
	CONE DIA.	V. C. DIA.				
SP2	7 1/4"	9/16"				

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

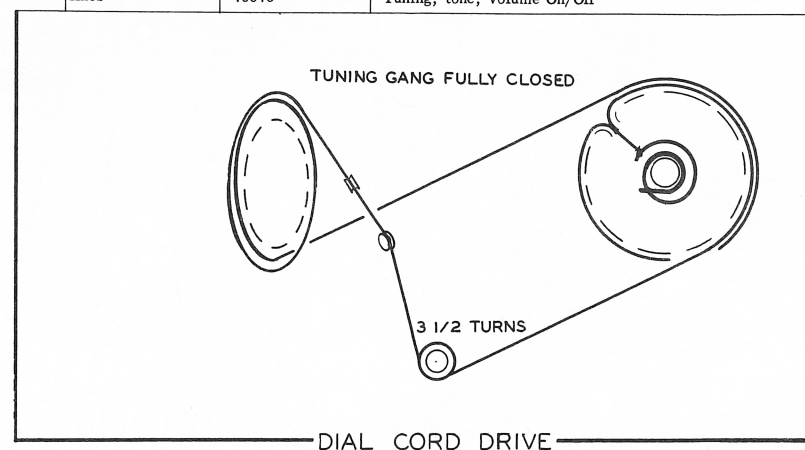
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	RCA VICTOR PART No.	MERIT PART No.	
L1	FM Ant. Coil	0Ω		76354		Tap at 1.7Ω
L2	FM RF Coil	0Ω		76353		
L3	AM Loop Ant.	.2Ω		76343		
L4	AM RF Coil	2Ω	4.7	76338		
L5	AM Osc. Coil	2.2Ω	5.6Ω	76337	BC-397	
L6	FM Osc. Coil	0Ω		76352		
L7	Fil. Choke	.4Ω		76351		
L8	Fil. Choke	.4Ω		76351		
L9	1st. FM IF	.3Ω		75559	FM-254	
L10	1st. AM IF	6.5Ω	6.5Ω	76335	BC-352	
L11	Fil. Choke	.2Ω		71942		Tap at .1Ω
L12	2nd. FM IF	1.4Ω	.5Ω	76329	FM-254	
L13	2nd. AM IF	7.5Ω	7.5Ω	76328	BC-352	
L14	Ratio Det. Trans.	1Ω	.2Ω	73743	FM-252	
L15	Line Choke	.1Ω				

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					RCA VICTOR PART No.		
M1	Bayonet	6-8	.25	Blue	11891		Type Number TS-44
M2	Bayonet	6-8	.25	Blue	11891		Type Number TS-44

MISCELLANEOUS

ITEM No.	PART NAME	RCA VICTOR PART No.	NOTES
M3	Switch		Function Selector (22-337MMF, 19-244MMF, 21-167MMF)
M4	3 Gang Var. Cap.	76333	
	Cabinet	Y2328	
	Dial	76356	
	Pointer	76362	
	Knob	74711	Function Switch Tuning, tone, volume On/Off
	Knob	73378	



PARTS LIST AND DESCRIPTIONS

ITEM No.	USE	REPLACEMENT DATA		RTMA BASE TYPE	INSTALLATION NOTES
		RCA VICTOR PART No.	STANDARD REPLACEMENT		
V1	FM-AM RF Amp.	6AU6	6AU6	7BK	
V2	AM-FM Converter	6X8	6X8	9AK	
V3	1st FM-AM IF Amp.	6BA6	6BA6	7BK	
V4	2nd FM IF Amp.	6AU6	6AU6	7BK	
V5	Ratio Detector	6AL5	6AL5	6BT	
V6	Detector-AVC-AF Amplifier	6AV6	6AV6	7BT	
V7	Power Output	6V6GT	6V6GT	7AC	
V8	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

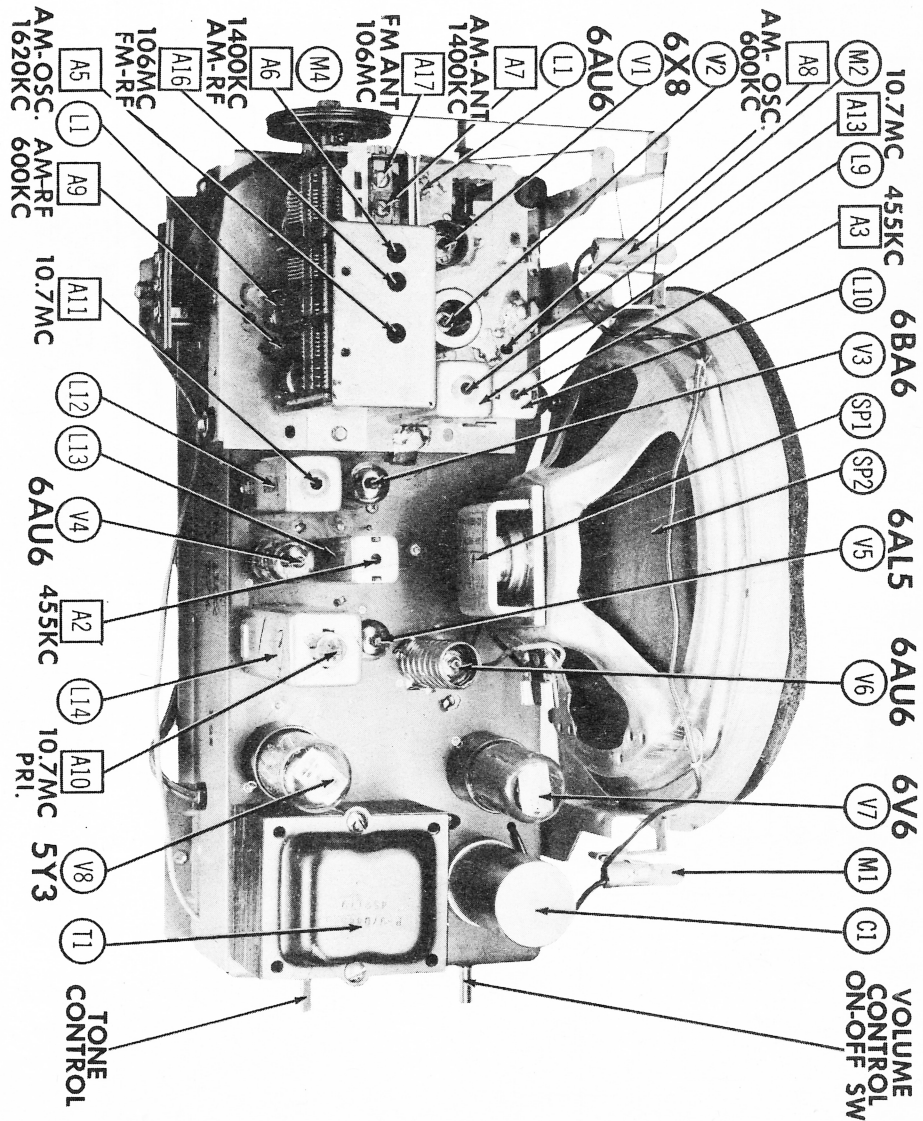
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

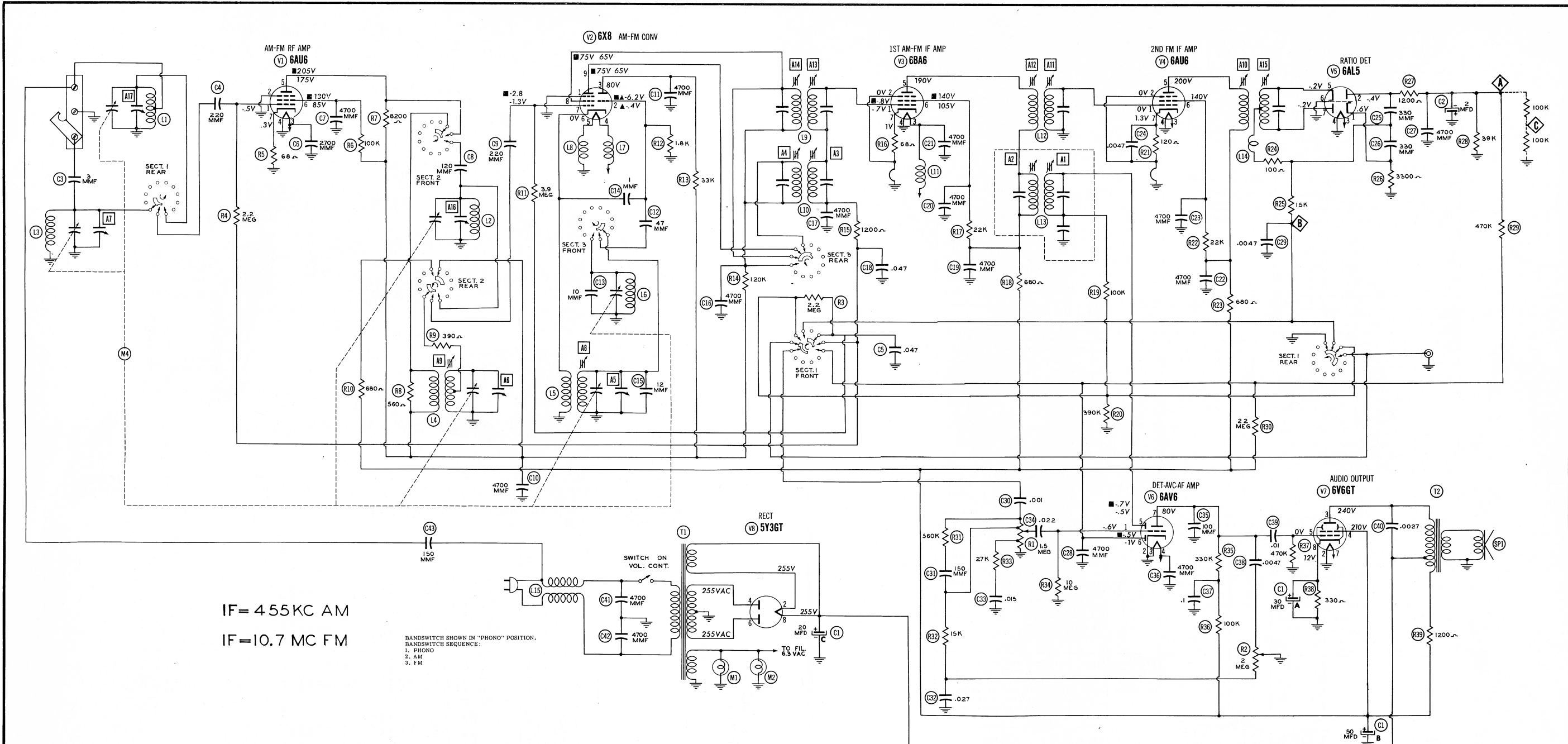
ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	RCA VICTOR PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	30	350	76330	AFH 4-100		UP33245C		TVL-4605	▲ Filter
B	50	300							■ Filter
C	20	25							▲ Power Output Cathode
C2	2	50	73747	PRSI50/4		BBR2 -50		TVA-1301	Stabilizing
C3	3	57090	513NP0		D6-221	5W5T25	NP0K-030	5GA-T22	AM RF Coupling
C4	220		75611	SI220	DF-503	PTE485	GP2K-221	2TM-347	RF Coupling
C5	.047	200	73558	P288-047	D6-272	IW5D3		5GA-T22	AVC Filter
C6	2700	500	39662	1467-003	DD-502	ID5D5	GP2-333-272	1FM-23	RF Amp. Fil.
C7	4700		73473	BPD-005	DD-502	ID5D5	811-005	5HK-D47	RF Amp. Screen
C8	120		76347	SI121	D6-121	5W5T15	GPIK-121	5GA-T12	FM RF Coupling
C9	220		75611	SI220	D6-221	5W5T25	GP2K-221	5GA-T22	RF Coupling
C10	4700		73473	BPD-005	DD-502	ID5D5	811-005	5HK-D47	RF Bypass
C11	4700		73473	BPD-005	DD-502	ID5D5	811-005	5HK-D47	Osc. Plate
C12	47		76348	SI147	D6-470	5R5Q5	GPIK-470	5GA-Q47	Osc. Grid Cap
C13	10		76350				N470K-100		Fixed Trimmer
C14	1		76677		TCZ-1		NP0K-010		Fixed Trimmer
C15	12		76349				N330K-120		Mixer Decoupling
C16	4700	500	39668	1467-005	D6-472	ID5D5	GP2-333-472	1FM-25	AVC Filter
C17	4700		73473	BPD-005	DD-502	ID5D5	811-005	5HK-D47	AVC Filter
C18	.047	200	73558	P288-047	DF-503	PTE485		2TM-347	AVC Filter
C19	4700		73473	BPD-005	DD-502	ID5D5	811-005	5HK-D47	1st IF Amp. Plate
C20	4700		73473	BPD-005	DD-502	ID5D5	811-005	5HK-D47	1st IF Amp. Screen
C21	4700		73473	BPD-005	DD-502	ID5D5	811-005	5HK-D47	1st IF Amp. Fil.
C22	4700		73473	BPD-005	DD-502	ID5D5	811-005	5HK-D47	2nd FM IF Amp. Plate
C23	4700		73473	BPD-005	DD-502	ID5D5	811-005	5HK-D47	2nd FM IF Amp. Screen
C24	.0047	400	73920	P688-0047	D6-472	PTE6D5	GP2-333-472	6TM-D47	2nd FM IF Amp. Cathode
C25	330	500	39640	1469-00035					Diode Load Cap.
C26	330	500	39640	1469-00035					Diode Load Cap.
C27	4700		73473	BPD-005	DD-502	ID5D5	811-005	5HK-D47	RF Bypass
C28	4700		73473	BPD-005	DD-502	ID5D5	811-005	5HK-D47	FM AVC Filter
C29	.0047	400	73920	P688-0047	D6-472	PTE6D5	GP2-333-472	6TM-D47	De-emphasis
C30	.001	600	75249	P688-001	D6-102	PTE6D1	GP2L-102	6TM-D1	Audio Coupling
C31	150		44202	SI150	D6-151	5W5T15	GP2K-151	5GA-T15	Tone Comp.
C32	.027	200	73554						Tone Comp.
C33	.015	200	73797	P288-015					Tone Comp.
C34	.022	200	73562	P468-022	DF-203	PTE4S2		4TM-S22	Audio Coupling
C35	100		75437	SI100	D6-101	5W5T1	GPIK-101	5GA-T1	AF Amp. Plate
C36	4700		73473	BPD-005	DD-502	ID5D5	811-005	5HK-D47	AF Amp. Fil.
C37	.1	200	73784	P288-1	DF-104	PTE4P1		2TM-P1	Tone Comp.
C38	.0047	400	73920	P688-0047	D6-472	PTE6D5	GP2-333-472	6TM-D47	Tone Comp.
C39	.01	400	73561	P468-01	D6-103	PTE4S1	GP2-333-103	4TM-S1	Audio Coupling
C40	.0027	1000	73818						Power Output Plate
C41	4700		73473	BPD-005	DD-502	ID5D5	811-005	5HK-D47	Line Filter
C42	4700		73473	BPD-005	DD-502	ID5D5	811-005	5HK-D47	Line Filter
C43	150	500	39632	1468-00015	D6-151	5W5T15	GP2K-151	1FM-315	FM Ant. Line Isolation

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	RCA Victor Part No.	IRC Part No.	CLAROSTAT Part No.	CENTRALAB Part No.	
R1A	1.5Meg	$\frac{1}{2}$	70342	Q18-139XX	T95		Volume Control Tapped @ 250KΩ and 500KΩ Attach to R1A per instructions. Volume Control and Switch Attach to R2A per instructions.
B	Switch		Not Req.	76-1	SW-A		
R2A	2Meg	$\frac{1}{2}$	75538	Q11-139	AG-83-S	B-75	
R	Shaft		Not Req.	Not Req.	FS-3	Not Req.	

CHASSIS—TOP VIEW





IF= 455 KC AM
IF=10.7 MC FM

BANDSWITCH SHOWN IN "PHONO" POSITION.
BANDSWITCH SEQUENCE:
1. PHONO
2. AM
3. FM

RESISTANCE READINGS									
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6AU6	2.7MEG	10K	10K	10K	10K	10K	10K	10K
V 2	6X8	10K	10K	10K	10K	10K	10K	10K	10K
V 3	6BA6	10K	10K	10K	10K	10K	10K	10K	10K
V 4	6AU6	10K	10K	10K	10K	10K	10K	10K	10K
V 5	6AL5	10K	10K	10K	10K	10K	10K	10K	10K
V 6	6AV6	10K	10K	10K	10K	10K	10K	10K	10K
V 7	6V6GT	10K	10K	10K	10K	10K	10K	10K	10K
V 8	5Y3GT	10K	10K	10K	10K	10K	10K	10K	10K

- ALL MEASUREMENTS TAKEN IN FM POSITION UNLESS NOTED
1 MEASURED FROM PIN 8 OF V8
* MEASURED IN AM POSITION
* TAKEN WITH VACUUM TUBE VOLTMETER
- THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
- DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
 - Socket connections are shown as bottom views.
 - Measured values are from socket pin to common negative.
 - Line voltage maintained at 117 volts for voltage readings.
 - Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
 - Volume control at maximum, no signal applied for voltage measurements.

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT
To set Pointer, turn tuning capacitor fully closed and set pointer parallel with base of dial.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1. .01MFD	High side to Pin 1, (Grid) of 6X8 (V2). Low side to chassis.	455KC (400vMod)	AM (center)	Tuning gang fully open.	Across voice coil.	A1, A2 A3, A4	Adjust for maximum output.
2. DiFect	High side to Term. 1 on ant. terminal strip, (disconnect link). Low side to chassis.	1620KC	"	"	"	A5	Adjust for maximum output.
3. "	"	1400KC	"	Tune for max. output.	"	A6, A7	Adjust for maximum output.
4. "	"	600KC	"	600KC	"	A8, A9	Connect a 10KΩ resistor across RF section of tuning gang. Rock tuning gang while adjusting A8 for maximum output. Remove 10KΩ resistor and adjust A9 for maximum output. Repeat steps 2, 3, & 4 until no further improvement can be made.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (1%) resistors in series from Point A to chassis. The junction of these two resistors is Point B as shown on the schematic. If the peaks of the transformers appear very broad it may be necessary to alternately load the windings to obtain accurate results. Alternate loading consists of connecting a 680Ω resistor across the primary winding while adjusting the secondary of the transformer. While adjusting the primary the resistor is connected across the secondary. Load only one winding at a time and remove the resistor after completing adjustment of each transformer.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5. .01MFD	High side to pin 1 (grid), of 6BA6, (V3) Low side to chassis.	10.7MC (unmod.)	FM (CW)	Tuning gang fully closed.	DC probe to point A. Common to chassis.	A10, A11 A12	Adjust for max. deflection.
6. "	High side to pin 7, (grid) of 6X8, (V2). Low side to chassis.	"	"	"	"	A13, A14	"
7. "	"	"	"	"	DC probe to point B. Common to point C.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120v sawtooth voltage in scope for horizontal deflection.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
5. .01MFD	High side to pin 1, (grid), of 6BA6, (V3) Low side to chassis.	10.7MC (450KC Swp)	FM (CW)	Point of non-interference.	Vert. Amp. to point A. Low side to chassis.	A10, A11 A12	Disconnect stabilizer capacitor C2. Adjust for maximum amplitude and symmetry as per fig. 1.
6. "	High side to pin 7, (grid), of 6X8 (V2). Low side to chassis.	"	"	"	"	A13, A14	"
7. "	"	"	"	"	Vert. Amp. to point B. Low side to chassis.	A15	Reconnect capacitor C2. Adjust A15 so 10.7MC occurs at center of crossover line as per fig. 2. SLIGHTLY retouch A10 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8. 300 Ω carbon resistor	High side thru 300Ω to ant. terminal 3, (remove line ant.) Low side to chassis.	90MC (unmod.)	FM	90MC	DC probe to point A. Common to chassis.	L6	Expand or compress coil turns for maximum deflection.
9. "	"	106MC	"	106MC	"	A16, A17	Adjust for max. deflection.
10. "	"	90MC	"	90MC	"	L1, L2	Expand or compress coil turns for max. deflection. Repeat steps 8, 9, and 10 until no further improvement can be made.

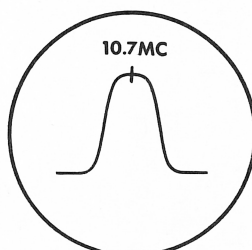


FIG. 1

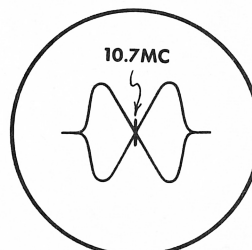


FIG. 2